WHAT IS CLAIMED IS:

1. A method for tracking variations in distance D calculated from time-of-flight measurements of a sequence of pulses of a pressure wave oscillation from a transmitter to a receiver, the pressure wave oscillation having a given wavelength and wave period, the method comprising:

(a) identifying a state of synchronous operation by obtaining at least two time-of-flight measurements derived from successive pressure wave pulses which satisfy given synchronicity criteria;

(b) monitoring successive time-of-flight measurements to identify a shifted time-of-flight measurement which varies by at least half of the wave period from a predicted time-of-flight value calculated from a number of preceding time-of-flight measurements;

(c) identifying a shift factor corresponding to an integer multiple of the wave period by which said shifted time-of-flight measurement must be corrected to obtain a corrected time-of-flight measurement falling within half of the wave period from the predicted time-of-flight value; and

(d) correcting the distance D calculated from said shifted time-of-flight measurement by the product of said shift factor and the pressure wave wavelength.

2. The method of claim 1, wherein the time-of-flight measurements are made by a technique configured to identify a predetermined point within a cycle.

3. The method of claim 2, wherein the time-of-flight measurements are made by identifying a first zero crossing of a received signal after the signal has exceeded a given threshold value.

4. The method of claim 1, further comprising disregarding a shifted time-of-flight measurement for which said shift factor exceeds a predetermined maximum value.

5. The method of claim 4, wherein said predetermined maximum value is less than 3.

6. The method of claim 1, wherein said corrected time-of-flight measurement is employed as a previous time-of-flight measurement for said step of monitoring performed on a subsequent time-of-flight measurement.

7. The method of claim 1, wherein state of synchronous operation is identified by obtaining at least three time-of-flight measurements derived from successive pressure wave pulses for which successive time-of-flight measurements vary by less than half of the wave period.

8. The method of claim 1, wherein state of synchronous operation is identified by obtaining at least three time-of-flight measurements derived from successive pressure wave pulses which vary substantially linearly.

9. The method of claim 1, wherein said predicted time-of-flight value is calculated by geometrical extrapolation from at least two previous time-of-flight measurements.

10. The method of claim 1, wherein said predicted time-of-flight value is calculated by extrapolation of a second order polynomial fitting the previous three time-of-flight measurements.

11. The method of claim 1, further comprising performing at least one supplementary shift test, said step of correcting being performed selectively in response to said supplementary shift test.

12. The method of claim 11, wherein said at least one supplementary shift test includes determining an order in which a positive and a negative signal amplitude threshold are exceeded.

13. The method of claim 11, wherein said at least one supplementary shift test includes:

(a) determining at least one peak signal amplitude occurring after a signal amplitude threshold is exceeded; and

(b) calculating whether said peak signal amplitude differs from that of a corresponding peak signal amplitude from a previous pulse by more than a predefined ratio.

14. The method of claim 1, wherein the transmitter is associated with a drawing implement which includes a contact switch for identifying operative contact between the drawing implement and a surface, the sequence of pulses being initiated in response to identification of said operative contact, the method further comprising continuing transmission of the sequence of pulses for a given delay period after said contact switch has ceased to indicate said operative contact so as to preserve said state of synchronous operation during intermittent contact.

15. The method of claim 14, wherein said given delay period is at least about ½ second.

16. A system for processing timing information and a received signal corresponding to a sequence of pulses of a pressure wave oscillation received by a receiver to track variations in a distance D calculated from time-of-flight measurements of the pulses, the pressure wave oscillation having a given wavelength and wave period, the system comprising:

(a) a signal processor for processing the received signal to derive an effective time-of-arrival for each pulse;

(b) a timing module associated with said signal processor, said timing module being configured to derive a time-of-flight for each pulse from the timing information and said effective time-of-arrival;

(c) a synchronous operation module associated with said timing module and configured to analyze said times-of-flight to identify a state of synchronous operation when at least two successive pressure wave pulses satisfy predefined synchronicity criteria;

(d) a monitoring module associated with said timing module and configured to monitor successive time-of-flight measurements to identify a shifted time-of-flight measurement which varies by at least half of the wave period from a predicted time-of-flight value calculated from a number of preceding time-of-flight measurements;

(e) a shift factor module associated with said monitoring module and configured to identify a shift factor corresponding to an integer multiple of the wave period by which said shifted time-of-flight measurement must be corrected to obtain a corrected time-of-flight measurement falling within half of the wave period from the predicted time-of-flight value; and

(f) a correction module associated with said timing module and configured to correct the distance D calculated from said shifted time-of-flight measurement by the product of said shift factor and the pressure wave wavelength.

17. The system of claim 16, wherein said predefined synchronicity criteria include that, for first, second and third time-of-flight measurements calculated from a first, a second and a third successive pulse, respectively, a difference between said first and said second time-of-flight measurements and a difference between said second and said third time-of-flight measurements are both less than half of the wave period.

18. The system of claim 16, wherein said predefined synchronicity criteria include that at least three time-of-flight measurements derived from successive pressure wave pulses vary substantially linearly.

19. The system of claim 16, wherein said signal processor is configured to identify a predetermined ~~point within a cycle~~ as said effective time-of-arrival.

20. The system of claim 19, wherein said predetermined point corresponds to a first zero crossing of a the received signal after the signal has exceeded a given threshold value.

21. The system of claim 16, wherein said shift factor module is configured to designate as erroneous any shifted time-of-flight measurement for which said shift factor exceeds a predetermined maximum value.

22. The system of claim 21, wherein said predetermined maximum value is less than 3.

23. The system of claim 16, wherein said monitoring module is configured to employ said corrected time-of-flight measurement as the previous time-of-flight measurement for monitoring a subsequent time-of-flight measurement.

24. The system of claim 16, wherein said signal processor is configured to perform at least one supplementary shift test, said correction module being configured to correct the distance D selectively in response to said supplementary shift test.

25. The system of claim 24, wherein said at least one supplementary shift test includes determining an order in which a positive and a negative signal amplitude threshold are exceeded.

26. The system of claim 24, wherein said at least one supplementary shift test includes:

(a) determining at least one peak signal amplitude occurring after a signal amplitude threshold is exceeded; and

(b) calculating whether said peak signal amplitude differs from that of a corresponding peak signal amplitude from a previous pulse by more than a predefined ratio.

27. The system of claim 16, wherein said monitoring module calculates said predicted time-of-flight value by geometrical extrapolation from at least two previous time-of-flight measurements.

28. The system of claim 16, wherein said monitoring module calculates said predicted time-of-flight value by extrapolation of a second order polynomial fitting the previous three time-of-flight measurements.

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29. A transmitter device for use with a system for digitizing operative strokes of a hand-held drawing implement, the drawing implement having a body and an operative tip, the transmitter device comprising:

(a) a housing with an aperture, the housing being configured for receiving a portion of the body of the drawing implement with its operative tip extending through said aperture;

(b) a normally-closed switch deployed so as to be opened by relative movement between the drawing implement and said housing resulting from pressure applied to the operative tip; and

(c) a primary spring deployed to bias the drawing implement to a forward position in which said switch is closed.

30. The transmitter device of claim 29, further comprising a secondary spring, weaker than said primary spring, deployed to act upon the drawing implement in a rearward direction so as to suspend the drawing implement within said housing.

31. The transmitter device of claim 29, further comprising a centering element associated with said primary spring and providing an abutment surface configured to align a rear end of the drawing implement centrally within said housing.

32. A system for identifying the position of a transmitter of a pulsed pressure-wave signal in at least two dimensions, the system comprising a plurality of interconnected modular receiver units, each of said modular receiver units including:

(a) a pressure-wave receiver configured to convert a received pressure-wave signal into an electrical signal;

(b) a signal processor associated with said pressure-wave receiver and configured to process said electrical signal to generate a detection output indicative of reception of a pulse of the pulsed pressure-wave signal;

(c) a timing module associated with said signal processor and responsive to said detection output and an externally supplied synchronization input to measure a time-of-flight of said pulse; and

(d) an output module associated with said timing module and configured to output data related to said time-of-flight.

33. The system of claim 32, wherein said plurality of interconnected modular receiver units are interconnected by a common data line, said output module of each of said modular receiver units being configured to provide a cascade trigger function for triggering sequential transmission of said output data by all of said modular receiver units along said common data line.